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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,923	10/01/2004	Noboru Ohtani	01381/8	8346
26646	7590	09/25/2006	EXAMINER	
KENYON & KENYON LLP ONE BROADWAY NEW YORK, NY 10004			MILLER, DANIEL H	
			ART UNIT	PAPER NUMBER

1775

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/509,923	Applicant(s) OHTANI ET AL.	
	Examiner Daniel Miller	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/3/2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 31-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 and 34-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/3/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-18, 22-30, and 34-36, drawn to a silicon carbide single crystal, classified in class 428, subclass 698.
 - II. Claims 19-21, 31-33, drawn to a method of producing a silicon carbide single crystal, classified in class 117, subclass 84.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions group I and group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case silicon carbide single crystal could be grown on a substrate and then cut to conform to the desired dimensions.
3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with John Kelly on 8/16/2006 a provisional election was made with out traverse to prosecute the invention of group I, claims 1-18,

Art Unit: 1775

2-30, 34-36. Affirmation of this election must be made by applicant in replying to this Office action. Claims 19-21 and 31-33 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 1106297.

8. JP 297' teaches a single crystal seed crystal of silicon carbide having an angle of inclination in the [0001] direction from the {11-20} plane ranging from –30 to 30 degrees and an angle of rotation (beta) of –10 to 10 degrees (see translation abstract. These ranges overlap the ranges claimed by applicant in claims 1-18 or would make the properties claimed inherent in the disclosed material of JP '297.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-18, 22-30, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powell (US 5,248,385) in view of JP 1106297.

11. Powell teaches a method of growing an epitaxial film on a SiC wafer (abstract). The film is a SiC single crystal film grown onto a SiC single crystal substrate (reference claim 10). The angle from the (0001) plane is 0.1 to about 6 degrees (claim 10). This range overlaps applicant's claimed range. The planer surface can have any angle within 1 to about 6 degrees relative to the basal plane (column 5 line 5-20). Regarding the wafer either the Si or C face can be polished for growth (column 5 line 16-23). Regarding claim 22-27 and 34-36, the wafer can have a diameter more than 25 mm (column 2 line 20-25).

12. The reference is silent as to the beta angle of the silicon <0001> direction to the [1-100] direction.

13. JP 297' teaches a single crystal seed crystal of silicon carbide having an angle of inclination in the [0001] direction from the {11-20} plane ranging from -30 to 30 degrees

Art Unit: 1775

(overlapping both Powell's and applicant's range) and an angle of rotation (beta) of -10 to 10 degrees (see translation abstract). These ranges overlap the ranges claimed by applicant in claims 1-18 and in method claims from which claims 22-30 and 34-36 depend or would make the properties claimed inherent in the disclosed material of JP '297.

14. It would have been obvious to one of ordinary skill in the art to provide a beta angle of as taught by in JP '297 and use it as a wafer (substrate) because it is known to provide a low resistance and high yield during fabrication (see JP'297 Abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Miller whose telephone number is (571)272-1534. The examiner can normally be reached on M-F.

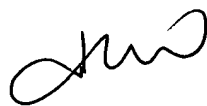
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571)272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1775

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Daniel Miller



JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER

9/15/06